REMARKS

Claims 6 and 21-27 are pending in the application and are rejected. Claim 6 is herein amended. No new matter has been entered.

Claim Rejections - 35 U.S.C. §102

Claims 6 and 22 are rejected under 35 U.S.C. §102(b) as being anticipated by Jacobs (U.S. Patent No. 5,055,907).

With respect to claim 22, the Examiner asserts that while Jacobs fails to explicitly teach a redistribution board mounting step of mounting the redistribution board on a package board via electrode pads formed on another surface of the redistribution board, connecting the redistribution board of Jacobs to a package board is implicitly taught because the structure of Jacobs has to be used in order to be useful.

Claims 6, 22 and 25 are rejected under 35 U.S.C. §102(b) as being anticipated by Kuramochi (U.S. Patent No. 5,654,590). Claims 6, 22 and 25 are rejected under 35 U.S.C. §102(e) as being anticipated by Jacobs (U.S. Patent No. 6,294,407). Claims 6, 22 and 25 are rejected under 35 U.S.C. §102(e) as being anticipated by Brofman et al. (U.S. Patent Application Publication No. 2002-0180013).

Applicants note that only claim 6 is independent; the remaining claims depend on claim 6.

Applicants elect to import additional limitations with respect to applying copper plating on an electrically conductive material film, and more specifically, including the limitation

wherein the base board separating step includes removing the electrically conductive material film from the redistribution board.

Claim Rejections - 35 U.S.C. §103

Claims 21, 23 and 25-27 are rejected under 35 U.S.C. §103(a) as being unpatentable over Jacobs (U.S. Patent No. 5,055,907) as applied to claim 6.

Regarding claim 21, the Examiner notes that Jacobs fails to teach the step of forming the redistribution board includes the step of forming the redistribution board incorporating a passive element on the base board, but concludes that it would have been obvious to use the passive element in the base board of Jacobs because it is conventionally known to a skilled artisan to include a passive element in the base board.

As to claim 23, the Examiner concludes that it would have been obvious to use silicon as the base board in the invention of Jacobs because silicon and glass are acceptable equivalent materials usable as base boards.

Regarding claim 25, the Examiner concludes that it would have been obvious to use silicon as the base board in the invention of Jacobs because silicon and glass are acceptable equivalent materials usable as base boards.

With respect to claim 26, the Examiner concludes that it would have been obvious to use both etching and grinding to remove the silicon base board in the invention of Jacobs because the combination of etching and grinding makes the removal step quicker, easier and safer than using etching alone.

As to claim 27, the Examiner concludes that it would have been obvious to use copper or a copper alloy as the base board in the invention of Jacobs because of a copper alloy and glass are acceptable equivalent materials usable as base boards.

Claim 24 is rejected under 35 U.S.C. §103(a) as being unpatentable over Jacobs (U.S. Patent No. 5,055,907) as applied to claim 6 above, and further in view of Jacobs (U.S. patent No. 6,294,407). The Examiner concludes that it would have been obvious to use sapphire as the base board in the invention of Jacobs because sapphire and glass are acceptable equivalent materials usable as base boards. The Examiner further concludes that it would have been obvious to use the organic film and the laser separation technique of Jacobs '407 in the invention of Jacobs '907 because this technique does not damage the substrates like an etchant would.

Claims 21, 26 and 27 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kuramochi, (U.S. Patent No. 5,654,590) as applied to claim 6 above. The Examiner concludes that it would have been obvious to incorporate a passive element on the base board because it is conventionally known to a skilled artisan to include a passive element in the base board.

Claim 23 is rejected under 35 U.S.C. §103(a) as being unpatentable over Kuramochi (U.S. Patent No. 5,654,590) as applied to claim 6 above, and further in view of Jacobs (U.S. Patent No. 5,055,907). The Examiner concludes that it would have been obvious to use the base board wafer of Jacobs in the invention of Kuramochi because Jacobs's method is a quicker, cheaper way to form multiple redistribution boards.

Claim 24 is rejected under 35 U.S.C. §103(a) as being unpatentable over Kuramochi (U.S. Patent No. 5,654,590) as applied to claim 6 above and further in view of Jacobs (U.S. Patent No.

6,294,407). The Examiner concludes that it would have been obvious to use the organic film and the laser separation technique of Jacobs in the invention of Kuramochi because this technique does not damage the substrates like an etchant would.

Claims 21, 23, 24, 26 and 27 are rejected under 35 U.S.C. §103(a) as being unpatentable over Jacobs (U.S. Patent No. 6,294,407) as applied to claim 6 above.

Claims 21 and 24-27 are rejected under 35 U.S.C. §103(a) as being unpatentable over Brofman et al. ((U.S. Patent Application Publication No. 2002-0180013) as applied to claim 6 above. Regarding claim 21, the Examiner concludes that it would have been obvious to use the passive element in the base board of Brofman because it is conventionally known to a skilled artisan to include a passive element in the base board.

Claim 23 is rejected under 35 U.S.C. §103(a) as being unpatentable over Brofman et al. (U.S. Patent Application Publication No. 2002-0180013) as applied to claim 6 above, and further in view of Jacobs (U.S. Patent No. 5,055,907). The Examiner concludes that it would have been obvious to use the silicon base board of Jacobs in the invention of Brofman because silicon and glass are acceptable equivalent materials usable as base boards, as taught by Jacobs (8, 5+).

Applicants' Response

Applicants herein amend claim 6 to clarify the invention. Thereafter, Applicants respectfully disagree with the above rejections, because not all of the claimed limitations are taught or suggested by the cited combination of references.

Applicants herein add a limitation directed to the step of forming an electrically conductive material film on the base board prior to forming the redistribution board on the base board.

Applicants' amendment to claim 6 is the following language, indicated as underlined:

"A manufacturing method of a semiconductor device, comprising:

a step of forming an electrically conductive material film on a base board;

a redistribution board forming step of forming a redistribution board on ~~a base board~~ the base board, wherein the redistribution board forming step includes the step of applying copper plating on the electrically conductive material film;

a base board separating step of separating the base board from the redistribution board;

a semiconductor element mounting step of mounting at least one semiconductor element on the redistribution board via electrode pads formed on a surface of the redistribution board."

Applicants note that the above added limitation was previously considered by the Examiner in the parent case to be patentably distinct over the prior art.

The Examiner has previously asserted that Jacobs '407 discloses a step of forming an electrically conductive material film on a base board prior to forming the redistribution board on the base board, and the Examiner asserts that the pad 112a corresponds to the electrically conductive material film of the present invention on which the copper plating is applied.

However, Applicants note that Jacobs '407 does not provide detailed description with respect to the step of forming the pad 112a. Applicants note that Figs. 3A-3F describes a

forming method of the structure shown in Fig 2. However, there is no description on how to form the pad 112a. Furthermore, the pad 112 is omitted in Figs. 3A-3F.

In Fig. 2 of Jacobs '407, the pad 112 is formed by pattering a conductive layer on the release layer 212. Accordingly, the conductive layer forming the pad 112a *remains* at a portion corresponding to the pad 112a, and the conductive layer is *removed* at portions other than the portion corresponding to the pad 112a. In effect, an unnecessary portion of the conductive layer forming the pad 112 is removed before the redistribution board (including the insulating layer 214 and the copper plated wiring layer) is formed on the base board.

On the other hand, in the present invention, as herein amended, the electrically conductive material film of the present invention remains until the base board is removed. That is, the electrically conductive material film is first removed when the base board is removed. Thus, the pad 112a shown in Fig. 2 of the Jacobs '407 reference could not be the electrically conductive material film according to the present invention. Therefore, at least these limitations are not taught or suggested by the cited reference.

Applicants note that claims 21-27 are dependent from amended claim 1 and necessarily include at least its limitations. Therefore, these claims are also not taught or suggested by the cited combination of references.

In view of the aforementioned amendments and accompanying remarks, Applicants submit that that the claims, as herein amended, are in condition for allowance. Applicants request such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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